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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/044,394 | 01/11/2002 | Kenneth M. Wilson | 10012382-1 | 9298 |

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EXAMINER

PORTKA, GARY J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2188

DATE MAILED: 04/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044,394

Applicant(s)

WILSON ET AL.

Examiner

Gary J Portka

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-14,17-24 and 27-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,5-14,17-24, and 27-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date June 1, 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 22, 2004 has been entered. Claims 1-2, 5-14, 17-24, and 27-35 are pending.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on June 1, 2004 was considered by the examiner.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-2, 5, 9-10, 12-14, 17, 20, 22-24, 27, 30, and 32-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites at lines 11-13 that the memory table includes entries pointing to data blocks, and that the entries are

used to locate the data. The specification does not appear to describe these limitations (support?). Therefore, it is not apparent how applicant has enabled the limitation of implementing the memory table and manager to manage data independent of the operating system and processor, when it is not apparent how the memory table and manager locate memory data and store pointers therefor. Claims 9, 12, 13, 20, 22, 23, 30, and 32 contain this limitation also, and claims 2, 5, 14, 17, 24, 27, and 33-35 incorporate this limitation by dependency. Claims 5, 17, 27, and 33-35 further recite using the physical address of the page, and converted from a virtual address, which also does not appear to be supported.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-2, 5-10, 13-14, 17-20, 23-24, 27-30, and 33-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites at lines 4-5 "acquire the piece of data in the memory system". It is unclear, since it was not previously recited where the data initially resides, whether this means acquire the data *from* the memory system or acquire the data *to* the memory system. It is further unclear when data is acquired, or what it exactly means to acquire. Likewise regarding the language of claim 6, it is unclear when a memory access is "complete" (claim 6 line 7). The specification at page 7 lines 1-5 shows that the latency manager in the path improves the efficiency of determining the latency; does that mean the time to acquire or complete is the time till the data gets to the latency manager, is it

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the time till the processor actually gets the data, or something else? Claims 8, 13, 18, 19, 23, 28, and 29 contain these limitations also, and claims 2, 5, 7-10, 14, 17, 19-20, 24, 27, 29-30, and 33-35 incorporate these limitations by dependency.

8. Claim 1 recites the memory table and manager managing the data blocks "independent" of an operating system and of a processor. It is unclear from the specification (page 11 lines 16-24 is the relevant discussion) what applicant intends metes and bounds of the term "independent" to be. Clearly the memory table and manager are not entirely independent of the operating system (OS) and processor, since the OS and processor must access memory, and memory access is made via the table and manager. Claims 10, 13, and 23 contain this limitation also, and claims 2, 5, 14, 17, 24, 27, and 33-35 incorporate this limitation by dependency.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 6-7, 11, 18, 21, 28, and 31 are rejected under 35 U.S.C. 102(a) as being anticipated by the admitted prior art.

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11. As to claims 6, 18, and 28, the admitted prior art at page 2 lines 9-19 discloses all claim limitations. That is, in the admitted "process seeking the access data keeps waiting for the data until the allocated wait time runs out, at that time the process is put in the background", is disclosed *a method, computer readable medium, and apparatus for managing a memory system comprising upon accessing the memory for a piece of data used by a first process, a processor working with the memory continuing functions until stalled* (stalled since the "process keeps waiting for data", and a processor implicitly continues functions until stalled), *comparing a time taken to complete the access to a threshold* ("until the allocated wait time runs out"), *and taking an action based on the results* ("the process is put in the background").

12. As to claim 7, in the admitted prior art the action taken is one of the recited actions, that is, "the process is put in the background" may be considered the same as either *postponing executing the first process and allowing executing a second*, or as *causing a first process to be switched to a second*.

13. As to claims 11, 21, and 31, the admitted prior art teaches the invention substantially as stated above with regard to claim 6. The additional limitation of counting is taught since all time in a computer is measured using a clock, which inherently counts as recited.

14. Claims 6-7, 11, 18, 21, 28, and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Horst et al., US 6,549,977 B1.

15. As to claims 6, 18, and 28, Horst discloses *a method for managing a memory system comprising upon accessing the memory for a piece of data used by a first*

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process (system generally shown in Fig. 1, and any read access is inherently to be used by a process), *a processor working with the memory continuing functions until stalled* (see col. 7 line 56 to col. 8 line 18, which describes mixed reads/writes where operation is continued until stalled due to running out of commands), *comparing a time taken to complete the access to a threshold* (see col. 8 lines 35-41, which describes comparing a read time to a threshold), *and taking an action based on the results* (see col. 8 lines 35-41, which describes flushing when a read takes too long).

16. As to claim 7, in Horst the action taken is one of the recited actions, that is, the flushing of the cache (which is occupied by a first process data) may be considered the same as *postponing executing the first process and allowing executing a second*.

17. As to claims 11, 21, and 31, Horst teaches the invention substantially as stated above with regard to claim 6. The additional limitation of counting is taught since all time in a computer is measured using a clock, which inherently counts as recited.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 1-2, 5, 9-10, 12-14, 17, 120, 22-24, 27, 30, and 32-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, in view of Gurumoorthy et al., US 6,857,058 B1, or alternatively over Horst et al., US 6,549,977 B1, in view of Gurumoorthy et al., US 6,857,058 B1.

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20. As to claims 1, 5, 9-10, 12-13, 17, 20, 22-23, 27, 30, and 32-35, the admitted prior art and Horst teach the invention substantially as described hereinabove. Neither the admitted prior art nor Horst disclose the additional limitations of memory table with entries pointing to data used to locate them, nor the table and memory manager working independent of an operating system and processor, nor that the table uses a physical address converted from a virtual address of a page to convert to a location address to locate the data. However, all of these limitations are taught in the analogous system of Gurumoorthy. Gurumoorthy teaches that systems require the ability to process disparate page sizes with speed (see col. 1 lines 7-21, and col. 2 lines 5-15). The solution is a mapping of a first page size into a second (see col. 5 lines 1-15), which teaches the address conversion as recited. This is independent of the operating system/processor as recited (see col. 3 lines 62-67). An artisan would have desired these elements in order to gain the ability to achieve high performance when encountering disparate page sizes in the other systems. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to add these elements to the admitted prior art or Horst, because as taught by Gurumoorthy they provided better performance when faced with disparate page sizes.

21. As to claims 2, 14, and 24, in the prior art combination discussed above, the placing of the data is inherently based on the structure of the memory and on the cache architecture.

22. Claims 8, 19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, or alternatively over Horst et al., US 6,549,977 B1.

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23. As to claims 8, 19, and 29, the prior art above does not disclose polling the manager for the time. However, one of ordinary skill in the art would have recognized that there were only two choices, either the manager must supply the time of its own accord, or it must be asked for it (equal to polling it). The first choice may reduce bus traffic since polling may take numerous iterations until the desired time is reached. The second choice may simplify manager circuitry since for the manager to supply the time itself requires determination of how to control the sending of the time (how often, at what interval, or at what time). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to poll the manager for the time, because this was known to simplify the circuitry of the manager as compared to alternative means.

Response to Arguments

24. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J Portka whose telephone number is (571) 272-4211. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gary J Portka
Primary Examiner
Art Unit 2188

April 4, 2005